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LA-UR-17-30345
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Title: Instructional Skills for Classroom Instructors (Course 29748)

Author(s): Wolfe, Randy P.

Intended for: Internal LANL institutional training

Issued: 2017-11-09

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Instructional Skills for Classroom Instructors (Course 29748)

Randy Wolfe & Kristan Matison

SI – Institutional Training Services

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Emergency Exit Routes

Go to the assembly area when you exit for an emergency.

- DO NOT LEAVE AREA
- NO FOOD OR DRINK
- NO SMOKING
- MINIMIZE TALKING

WRTC Evacuation Assembly Area

After exiting the building during an emergency, assemble at the grassy knoll beside the front parking lot.

Lunchtime in White Rock

Purpose of this Course

To help you better deliver ***effective*** classroom instruction.

Learning Objectives

You will learn about…

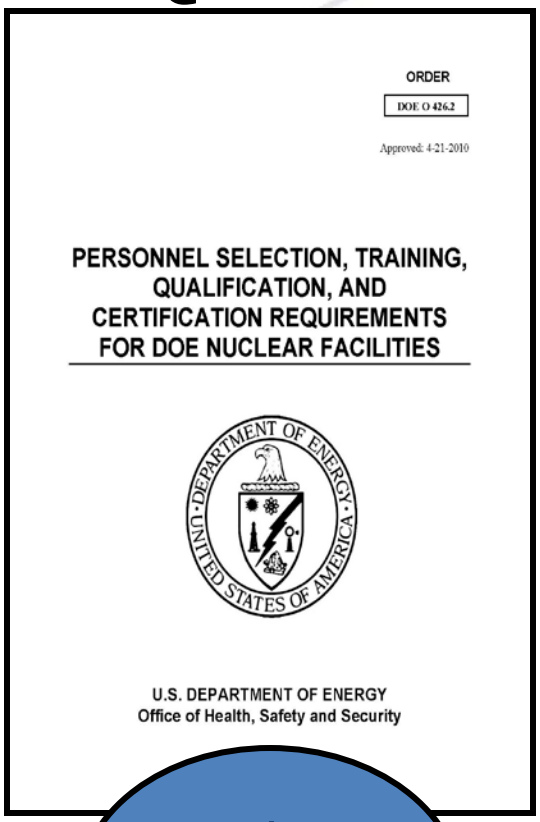
- Drivers & qualification requirements for a classroom instructor
- How the Systematic Approach to Training (SAT) process works
- Adult learning principles
- The duties & tasks required to conduct classroom instruction
- Training methodologies and creating instructional aides

Learning Objectives

…most important, you will …

- **Practice** through:
  - delivering a training module using a lesson plan, instructional strategies, and instructional aids
  - critiquing yourself via video
  - helping each other

Classroom Instructor Qualification



ORDER

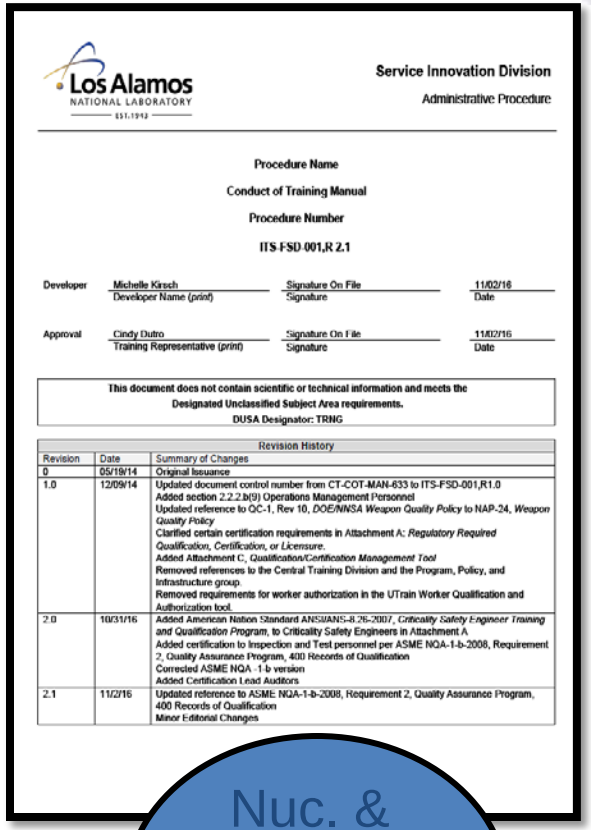
DOE O 426.2

Approved: 4-21-2010

PERSONNEL SELECTION, TRAINING, QUALIFICATION, AND CERTIFICATION REQUIREMENTS FOR DOE NUCLEAR FACILITIES

U.S. DEPARTMENT OF ENERGY
Office of Health, Safety and Security

Nuclear Facilities



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Service Innovation Division

Administrative Procedure

Procedure Name

Conduct of Training Manual

Procedure Number

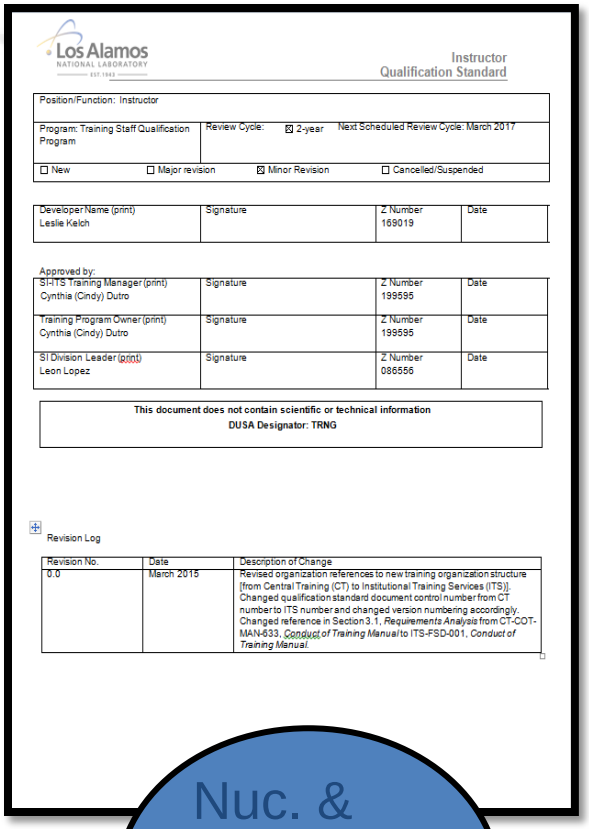
ITS-FSD-001,R 2.1

Developer	Michelle Kirsch Developer Name (*print*)	Signature On File Signature	11/02/16 Date
Approval	Cindy Dutro Training Representative (*print*)	Signature On File Signature	11/02/16 Date

This document does not contain scientific or technical information and meets the Designated Unclassified Subject Area requirements.
DUSA Designator: TRNG

Revision History		
Revision	Date	Summary of Changes
0	05/19/14	Original Issuance
1.0	12/09/14	Updated document control number from CT-COT-MAN-633 to ITS-FSD-001,R1.0 Added section 2.2.2.b(9) Operations Management Personnel Updated reference to QC-1, Rev 10, *DOE/NNSA Weapon Quality Policy* to NAP-24, *Weapon Quality Policy* Clarified certain certification requirements in Attachment A: *Regulatory Required Qualification, Certification, or Licensure.* Added Attachment C, *Qualification/Certification Management Tool* Removed references to the Central Training Division and the Program, Policy, and Infrastructure group. Removed requirements for worker authorization in the UTrain Worker Qualification and Authorization tool.
2.0	10/31/16	Added American Nation Standard ANSI/ANS-8.26-2007, *Criticality Safety Engineer Training and Qualification Program*, to Criticality Safety Engineers in Attachment A Added certification to Inspection and Test personnel per ASME NQA-1-b-2008, Requirement 2, Quality Assurance Program, 400 Records of Qualification Corrected ASME NQA -1-b version Added Certification Lead Auditors
2.1	11/2/16	Updated reference to ASME NQA-1-b-2008, Requirement 2, Quality Assurance Program, 400 Records of Qualification Minor Editorial Changes

Nuc. & Non-Nuc. Facilities



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Instructor Qualification Standard

Position/Function: Instructor			
Program: Training Staff Qualification Program	Review Cycle: ☒ 2-year	Next Scheduled Review Cycle: March 2017	
☐ New ☐ Major revision ☒ Minor Revision ☐ Cancelled/Suspended			

Developer Name (print) Leslie Kelch	Signature	Z Number 169019	Date

Approved by:

SHTS Training Manager (print) Cynthia (Cindy) Dutro	Signature	Z Number 199595	Date
Training Program Owner (print) Cynthia (Cindy) Dutro	Signature	Z Number 199595	Date
SI Division Leader (print) Leon Lopez	Signature	Z Number 086556	Date

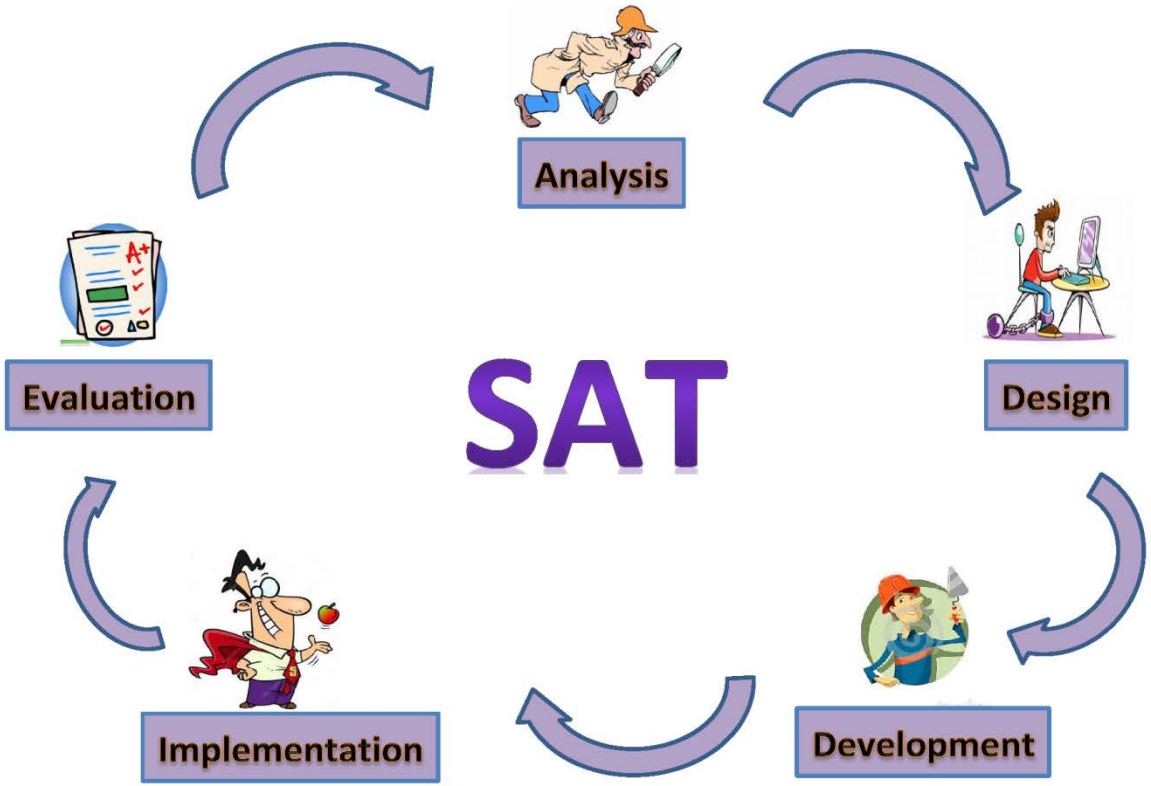
This document does not contain scientific or technical information
DUSA Designator: TRNG

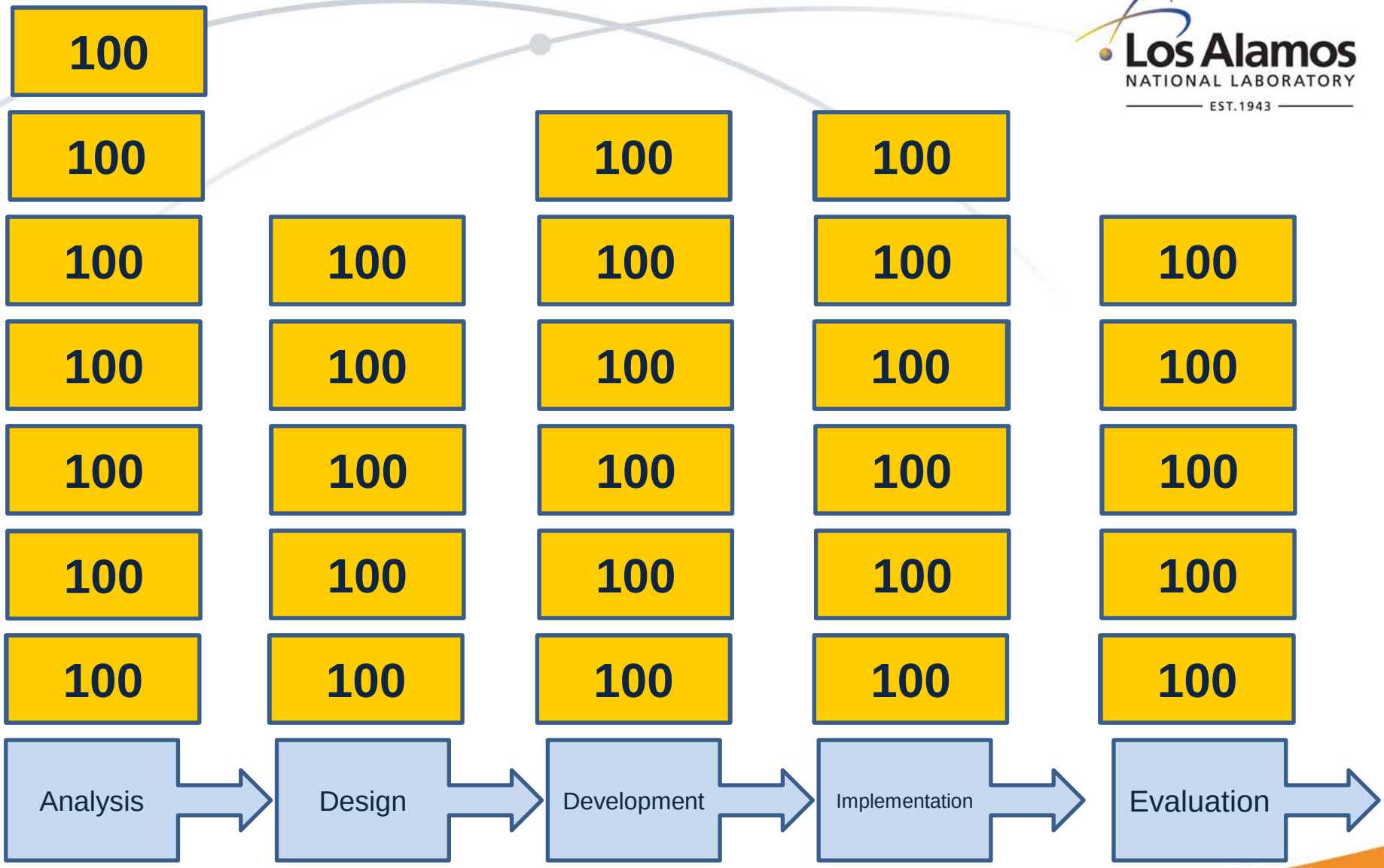
Revision Log

Revision No.	Date	Description of Change
0.0	March 2015	Revised organization references to new training organization structure [from Central Training (CT) to Institutional Training Services (ITS)]. Changed qualification standard document control number from CT number to ITS number and changed version numbering accordingly. Changed reference in Section 3.1, *Requirements Analysis* from CT-COT-MAN-633, *Conduct of Training Manual* to ITS-FSD-001, *Conduct of Training Manual*.

Nuc. & Non-Nuc. Facilities

The Systematic Approach to Training

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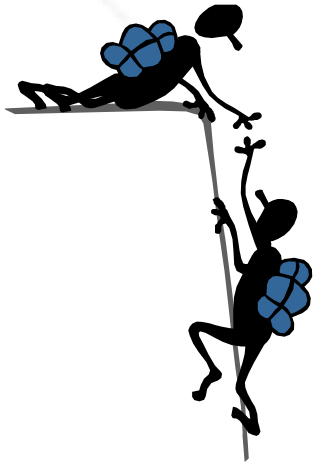
Analysis
Design
Development
Implementation
Evaluation

Your Students are Adult Learners!

Pedagogy

The child has a need to learn from the teacher. The teacher is the dispenser of knowledge, and the student is receptive and dependent in this learning process.



Andragogy

The concept of andragogy implies self-directedness in learning and an active and involved role by the adult student.

Adult Learning Principles

- There must be a clear *purpose and usefulness* for the training for the adult learner.
- The new training must *connect* with the adult's prior knowledge, skills, or experiences.
- The adult learner must have an *immediate opportunity or need* to use the training.
- The adult learner must be given the opportunity to *practice and succeed* in the learning environment.
- The adult learner must *feel respected and safe* in the learning environment.

Adult Learning

. . .A few reminders

From: Malcolm Knowles
The Adult Learner
1998, 5th edition

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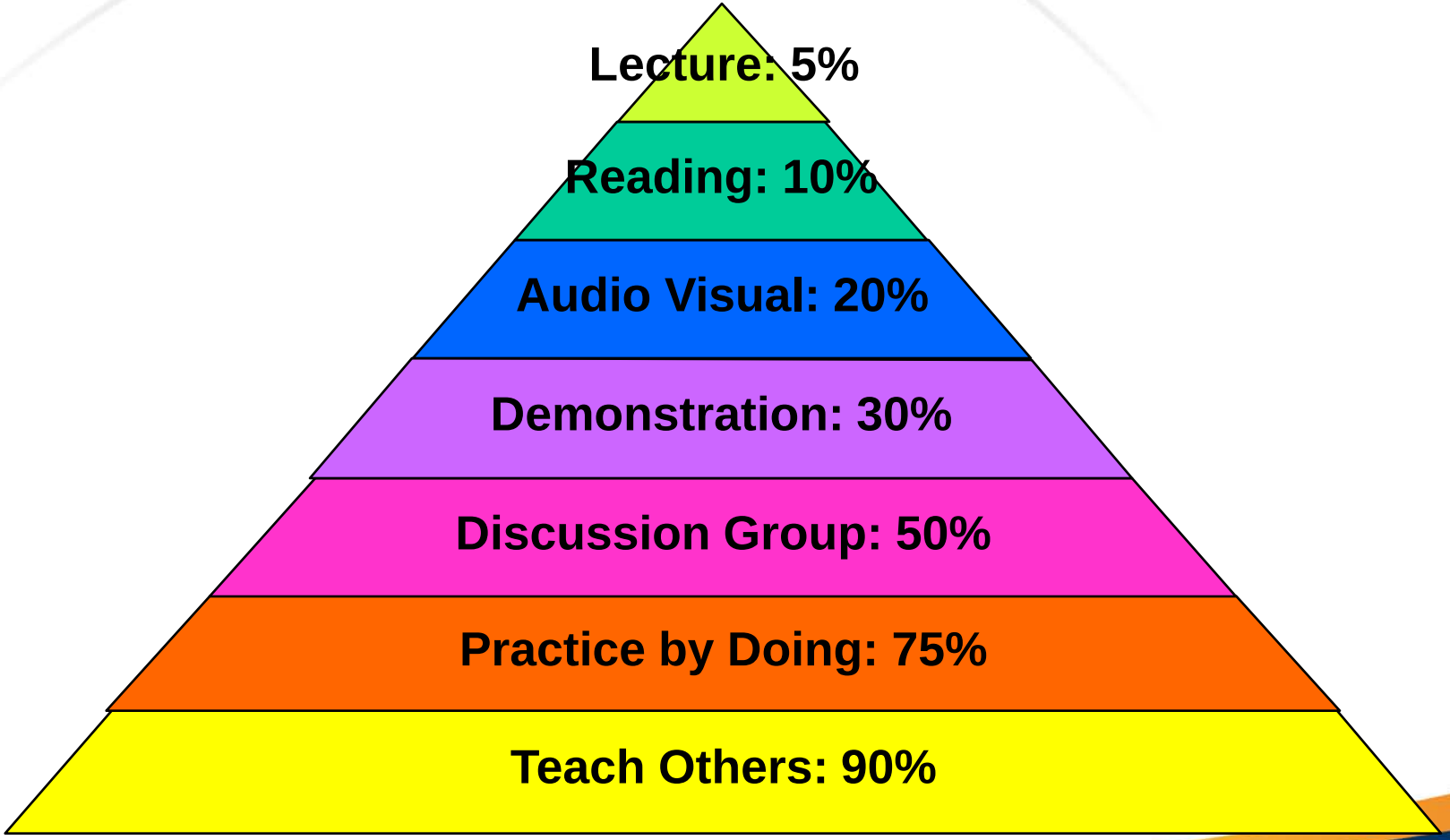
METHODS

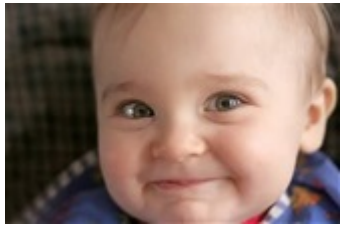
- LECTURE
  - Giving information
  - Large group size
  - Six or fewer points / half hour
- DEMONSTRATION / PERFORMANCE
  - Relate to real-world situations
  - Small group size
  - Student Ability
- DISCUSSION
  - Complex information
  - Small – Medium group size
  - Stay on Track

Content Retention Rates

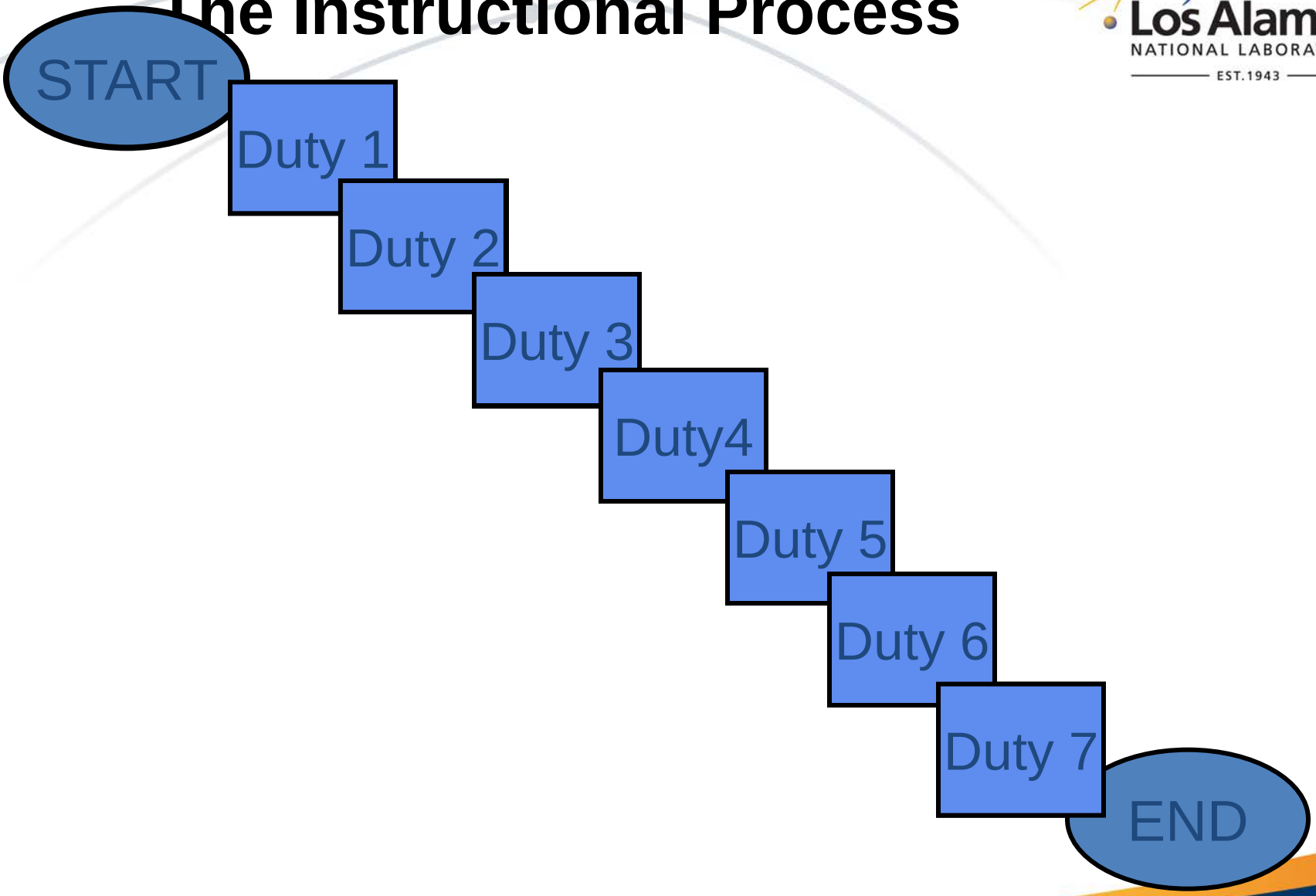


Presentation Tips

- Be polite
- Start right
- Monitor
  - Voice
  - Movement, mannerisms, distractions
  - Facial expressions



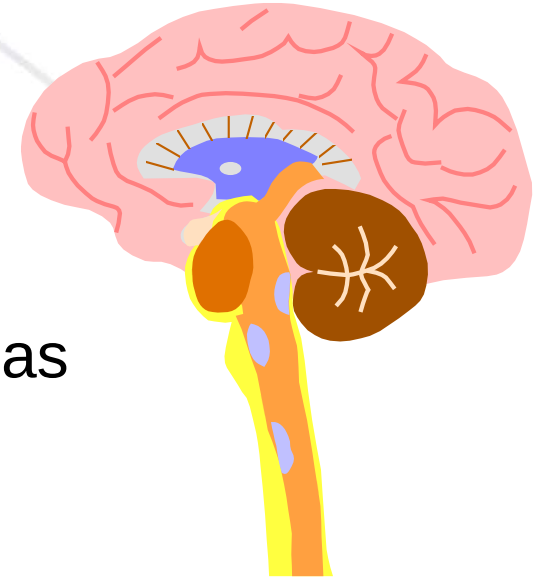
The Instructional Process



Conduct Training (duty 5)

Content must have

- Logical organization
- Smooth flow & transitions
- Framework of simple to complex ideas
- Scaffolding:

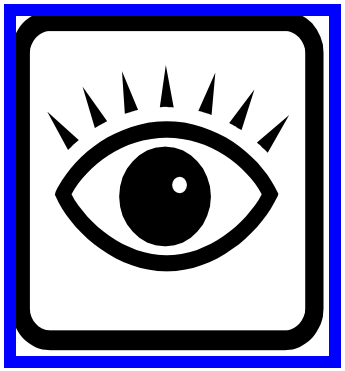


from **knowledge**
(theory, principles, concepts, terms & definitions)

to **skill**
(application, practical use)

Conduct Training

TIP #1: Pay attention to your students.



TIP #2: Ask good questions.

SLIDES THAT KEEP YOUR ATTENTION

From the following examples,
choose the first or the second slide

LANL SPENDING: Labor vs. Non-Labor

1) WE WILL RELY ON YOUR GOOD FAITH EFFORTS TO COMPLY AND DOCUMENT CHARGING REQUIREMENTS FOR LABOR AND NON-LABOR! LANL spends more than $2 billion every year. Our charging requirements are intended to ensure that the lab complies with our government contract to properly allocate labor costs and avoid under/over charging of projects or specific budgeted cost codes. We realize that a certain amount of personal judgment enters into a decision whether to charge time beyond the minimum work week, particularly when performed away from your regular work station. No employee who in good faith is attempting to capture all productive time and is not deliberately trying to undercharge a particular project or budgeted item need be concerned with employee discipline. Employees always may contact their management or CFO for guidance.

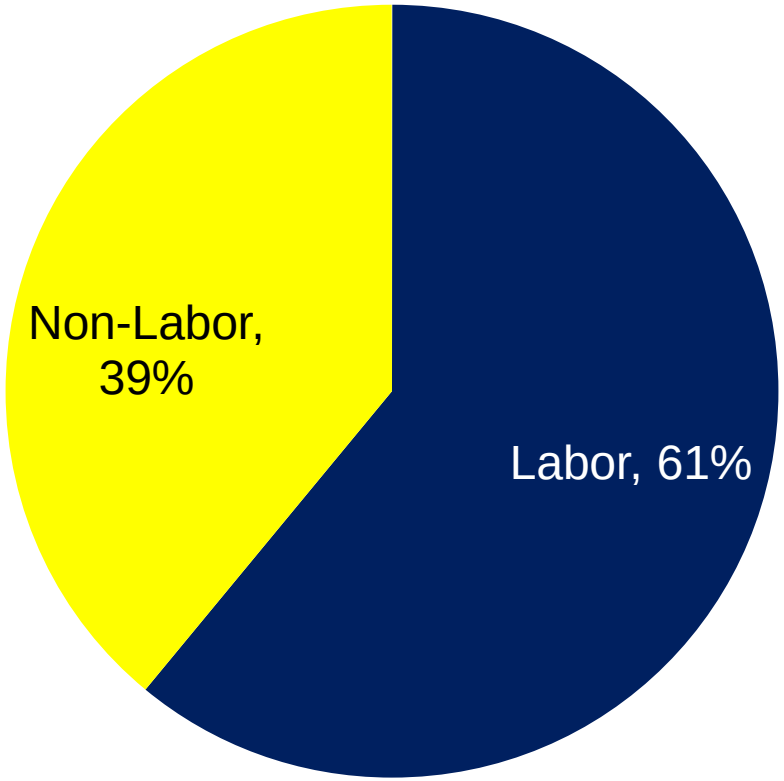
2) All work requirements (time, M&O, OH, etc.) must be charged to a LANL charge code

3) Activities beyond the minimum work week must be charged (prorated per policy) to a LANL charge code regardless of location if the activity advances completion of a management direction or expectation or a project assigned to the employee unless otherwise advised by ASM, DL or above.

4) Activities beyond the minimum work week are not to be charged regardless of location if they are not intended to advance completion of a management direction or expectation or a project assigned to the employee. Such activities may include, for example, self-directed continuing education and professional development conducted after regular work hours, and unstructured thinking about work during routine, normal activities of daily living (while gardening, hiking, watching a television program, etc.). Such activities are not performed as part of work and are not under the direction and control of management.

LANL Spending: >$2B per year

Payments to vendors and other entities



Salaries and fringe benefits paid to LANL staff

Every manager has a responsibility to ensure dollars are spent appropriately

Our Primary Goal is to help support

- Management
- Lab Employees
- First Responders
- Our Families
- The Greater Community

Occupational Medicine
When to Ask for Services

We support all of LANL. There are many situations for which our services may be needed.

- An employee is unfocused and distracted You know employee has recently gone through a divorce and custody issues.
- An employee recently had a significant death in the family – it's been over 2 months now, but s/he is still unable to focus, frequent tearfulness/crying
- An employee whom is normally calm has a sudden angry outburst in a meeting toward the supervisor
- An employee has demonstrated unusual interpersonal conflict, other employees have noticed, recently had a threating verbal outburst with another employee
- A manager calls and states that an employee has not been showing up for work, is not at his/her work station when manager looks for him/her, employee on transitional status, employee has been told transitional status will end after 90 days, co-workers & manager concerned, manager has strongly encouraged employee seek assistance at the EAP, however, it is known that the employee has not been to the EAP.
- During an evaluation at OM one of the medical providers may obtain medical information that warrants a more in-depth evaluation
- What if you suggest/encourage EAP services and you see no change?

What can you do?

LANS performs oversight activities to ensure LANL success consistent with the requirements of the contract.

Oversight

Board of Governors duties include (but not limited to):

- *Setting operating policies of LANS and providing direction to the LLC President;*
- *Selecting and replacing Laboratory Director and other key personnel (incl. LANS, LLC officers), and providing expertise and 'best-in-class' management systems;*
- *Assessing laboratory operations for optimum performance;*
- *Approving the LANS compensation increase plan;*
- *Concurring with Contractor Assurance System (CAS) assurance letter;*
- *Approving and implementing the Parent Oversight Plan; and*
- *Managing risk for the LLC (e.g., relational, financial, reputational).*

Oversight Committees
(members)

- Business, Ops & Security (25)
- Ethics & Audit (7)
- Mission (15)
- Nomination & Compensation (7)
- Science & Technology (15)

Tool Box

- Independent Functional Management Reviews (FMRs)
- Assess, Improve, and Modernize (AIM) Reviews
- Institutional ST&E Reviews (ISTERs)
- Others (e.g., assessments, assist visits)

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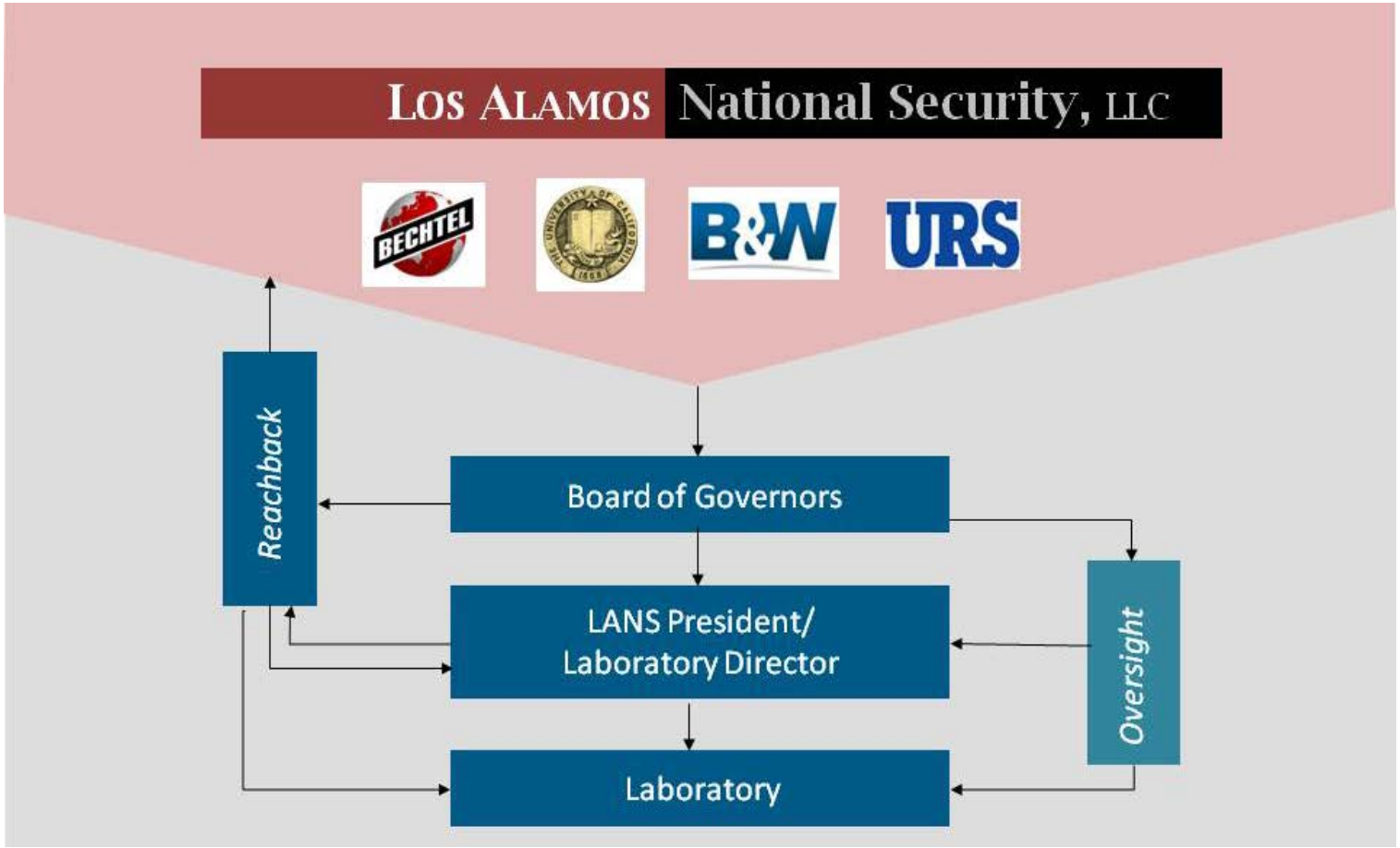
LANS, LLC



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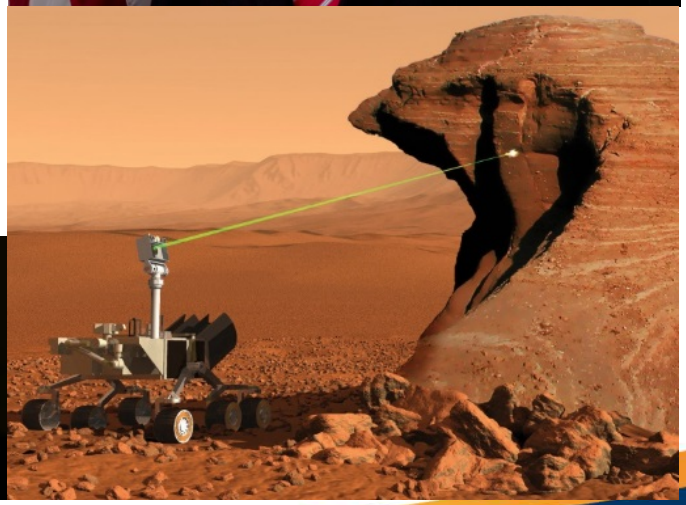
Today's Laboratory

- 20 years of Stockpile Stewardship without full-scale testing
- The Trinity supercomputer - 40 times faster than Roadrunner
- Exploring Mars - Curiosity Rover
- Project ATHENA – ethical testing of new drugs
- Pioneering work in nanotechnology at CINT



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LANL: A Tradition of Innovation

Los Alamos scientists conduct the world's first nuclear test

Nuclear weapons developed at Los Alamos help end World War II

The Monte Carlo method devised by LASL scientists

LASL completes the world's first plutonium-fueled reactor

First underground nuclear test conducted by LASL

LASL conducts the first nuclear test producing thermonuclear burn

LASL conducts the first full-scale thermonuclear test

LASL conducts the first tactical nuclear weapon test

The largest United States nuclear test conducted by LASL

The existence of the neutrino proven by LASL scientists

The heat pipe is invented by LASL scientists

LASL-developed Vela satellites launched

Gamma-ray bursts first detected by Vela satellites

LAMPF produces an 800 MEV beam

LASL's Nuclear Safeguards Program begins

LAMPF ships its first medical radioisotopes

IHE first used in a stockpiled nuclear weapon

GenBANK established at LANL

LANL's Cray X-MP named world's fastest computer

LANL x-ray detectors used on GPS satellites

Center for Genome Studies established at LANL

LANL participates in Joint Verification Experiment

National High Magnetic Field Laboratory established at LANL

LANL begins participation in experiments that ultimately confirm neutrino mass

LANL conducts the last US nuclear weapons test

Chromosome 16 is mapped at LANL

The first 3D full-system weapons simulation is performed at LANL

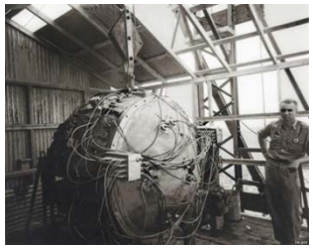
LANL's Roadrunner supercomputer breaks the petaflop barrier

DARHT becomes the world's most powerful x-ray machine

LANL scientists produce a 100T non-destructive magnetic field

Curiosity Rover lands on Mars equipped with LANL instruments

LANL scientists develop a breakthrough portable medical MRI device



So – if ya gotta have slides. . .

BETTER SLIDES
Four principles from cognitive science[1]

- Write complete / descriptive slide title
  - Learning is increased by 10%[2]
- Limit to 3 or 4 “chunks” of information
  - People can’t absorb more
  - Break long lists into small chunks
- Use “sign posts”
  - Large, bold font for highlighting key points
  - Learners need “landing spots” to reference
- Use pictures
  - Increases learning an average 36%

[1] Bruce Gabrielle
[2] Penn State Study

- Highlight key points; not details
- 6x6 Rule
- Art and Graphics
  - tell a story
  - add relevance
  - make a point memorable

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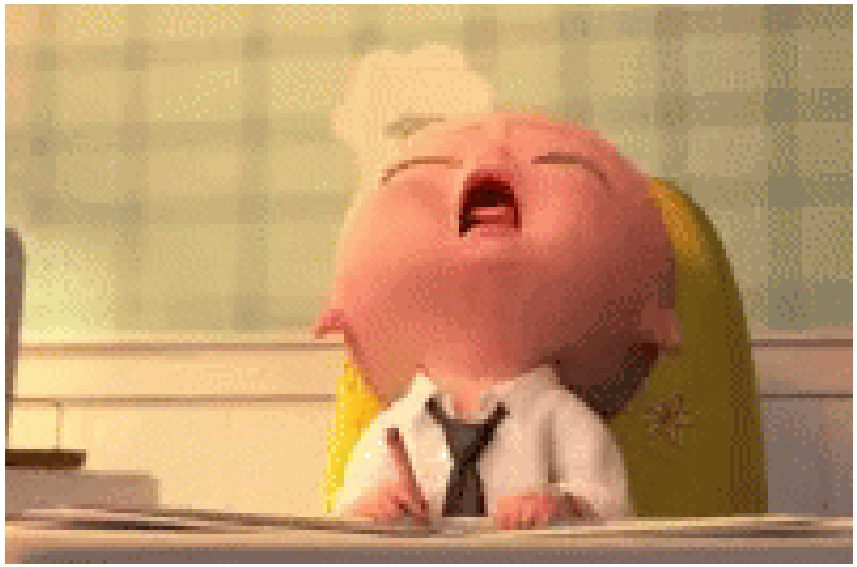
MORE



- Suitable for ?:
  - The audience
  - The subject
  - The delivery method
  - The venue

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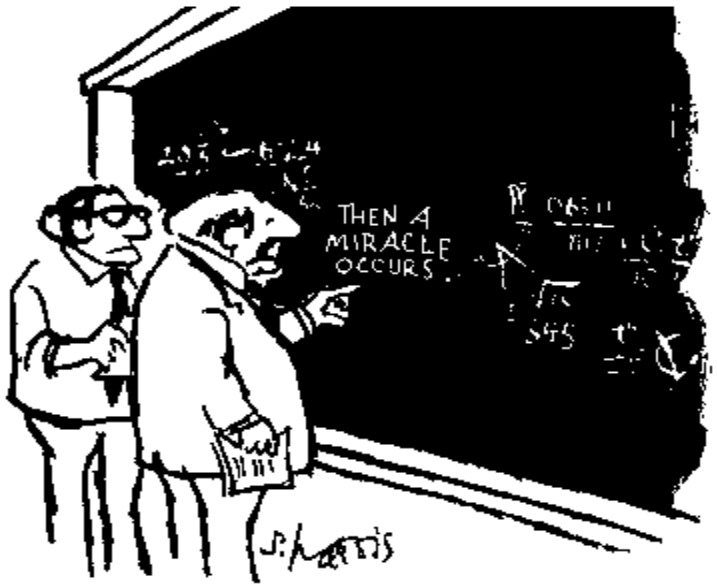
Prepare & Deliver a Training Module

- Develop a 10 minute training module.
  - Module will include:
    1. Introduction
    2. Body (2 instructional strategies)
       a. _____ (your choice)
       b. Participative Activity – a must!
    3. Summary
    4. Conclusion
  - Develop a lesson plan to accompany your training module - a must!

- PRACTICE (practice)

Deliver Your Training Module

1. Deliver your training module
   - *Use your lesson plan*
2. Receive feedback
3. Watch and critique yourself



"I THINK YOU SHOULD BE MORE EXPLICIT HERE IN STEP TWO."

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This morning, we hope you learned:

- Why and how instructor must be qualified
- The 5 steps of the Systematic Approach to Training Process (SAT).
- What motivates adult learners.
- The important steps in preparing and delivering classroom training
- The value of a lesson plan, instructional strategies, instructional aids, participative activities, and instructor feedback.

BEST INSTRUCTOR

- Characteristics and Techniques
  - 10 minutes

- Impromptu Presentation
  - 3 minutes each